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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,542	07/10/2003	William D. Buchanan	AVI 1010-02US	2814

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THE LAW OFFICE OF JOHN A. GRIECCI
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EXAMINER

DESCHERE, ANDREW M

ART UNIT	PAPER NUMBER
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2836

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/616,542

Applicant(s)

BUCHANAN ET AL.

Examiner

Andrew M. Deschere

Art Unit

2836

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 13-17, 20-22, 24, 26, 28, 33 and 45-63 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 59 and 60 is/are allowed.
- 6) ☒ Claim(s) 1, 13-17, 20-22, 24, 26, 33, 45-56, 58 and 61-63 is/are rejected.
- 7) ☒ Claim(s) 28 and 57 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/13/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Response to Amendment

The amendment filed 26 June 2006 has cancelled claims 2-12, 18-19, 23, 25, 27, 29-32, and 34-44. Examiner's rejections under 35 USC 112 are withdrawn. Claim 28 has been amended to correct and issue of antecedent basis.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 57 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 57 recites the limitation "the system controller and the module controller for the first charging module communicate to determine the operation of the crossover switch and the first and second connecting switches". There is insufficient antecedent basis for "the first and second connecting switches" in the claim and for examination purposes claim 57 will be treated as if it depended from claim 56.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2836

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 13, 20, 22, 24, 33, and 61 rejected under 35 U.S.C. 102(b) as being anticipated by Henze (US 5,926,004).

Henze discloses a method and apparatus for charging one or more electric vehicles having a primary power port configured to receive power from the power source ("Utility Interface" figure 1 ref-# 12 and figures 4-7 ref# 152), a plurality of secondary power ports ("Power Couplers" figures 4-7 ref# 160A-160D) configured to distribute power from the primary power port to the plurality of batteries (col. 2 lines 51-67, col. 3 lines 1-19, and col. 6 lines 6-65), each secondary power port being characterized by a power rating ("Power Couplers" figures 4-7 ref# 160A-160D), wherein the sum of the secondary power port power rating establishes an aggregate output power rating and wherein the aggregate output power rating can exceed a designated power limit (col. 7 lines 7-62 [The examiner would like to point out that the sum of the power coupler power ratings is 87.5KW and the maximum power the electric vehicle charging system can output is 50KW.]), and a system controller circuit ("Controller" figures 4-7 ref# 159) configured to regulate the power distributed by at least one secondary power port of the plurality of secondary power ports such that if the sum of the power ratings of the secondary power ports simultaneously used to charge batteries exceeds the designed power limit the power received from the power source does not exceed the designated power limit (figures 5,7, col. 6 lines 40-56 and col. 7 lines 7-62 [The examiner would like to point out that in figure 5 the sum of the power ratings of the secondary power ports simultaneously used to charge batteries is 87.5KW and power received from the power source does not exceed the 50KW limit. The examiner would like to further point out that in figure 7 the sum of the power rating of the secondary power ports simultaneously used to charge batteries is 75KW and the power received from the power source does not exceed the 50KW limit.]).

Art Unit: 2836

Henze discloses the charging system receives power-source power only through the primary power port ("Utility Interface" figure 1 ref# 12, figures 4-7 ref# 152, col. 3 lines 40-67, and col. 4 lines 1-36), the primary power port is characterized by a power rating (col. 7 lines 7-62 [The utility interface is limited to drawing 50KW.]), the designated power limit equal the primary power port power rating and the aggregate output power rating exceeds the primary power port power rating (figures 5,7, col. 6 lines 40-56 and col. 7 lines 7-62 [The examiner would like to point out that in figure 5 the sum of the power ratings of the secondary power ports simultaneously used to charge batteries is 87.5KW and power received from the power source does not exceed the 50KW limit. The examiner would like to further point out that in figure 7 the sum of the power rating of the secondary power ports simultaneously used to charge batteries is 75KW and the power received from the power source does not exceed the 50KW limit.]).

Claim 13; Henze discloses the system controller ("Controller" figures 4-7 ref# 159) is configured to transmit command signals appropriate to direct load battery controllers ("On-Board Controller" col. 2 lines 12-48) to regulate power drawn by the plurality of batteries (col. 6 lines 40-67 and col. 7 lines 1-6).

Regarding Claim 24:

Henze discloses a method and apparatus for charging one or more electric vehicles having a plurality of secondary power ports ("Power Couplers" figures 4-7 ref# 160A-160D), each secondary power port being configured to electrically connect to at least one of the plurality of batteries (col. 2 lines 51-67 and col. 3 lines 1-19), each secondary power port being characterized by a power rating ("Power Couplers" figures 4-7 ref# 160A-160D), a utility port configured to electrically connect to the utility and provide power from the utility to the plurality of secondary power ports ("Utility Interface" figure 1 ref# 12, figures 4-7 ref# 152, col. 3 lines 40-

Art Unit: 2836

67, and col. 4 lines 1-36), a system controller configured to control the power distribution between the utility port and the plurality of secondary ports ("Controller" figures 4-7 ref# 159), wherein if the sum of the power ratings of the secondary power used to charge the plurality of batteries exceeds the maximum power level the system controller controls the power distribution such that the plurality of batteries are simultaneously charged using power from the utility at a power level not exceeding the maximum power level (figures 5,7, col. 6 lines 40-56 and col. 7 lines 7-62 [The examiner would like to point out that in figure 5 the sum of the power ratings of the secondary power ports simultaneously used to charge batteries is 87.5KW and power received from the power source does not exceed the 50KW limit. The examiner would like to further point out that in figure 7 the sum of the power rating of the secondary power ports simultaneously used to charge batteries is 75KW and the power received from the power source does not exceed the 50KW limit.]), a first charging module ("Power Converters" figures 4-7 ref# 158A-158D and "Power Couplers" figures 4-7 ref# 160A-160D), wherein the plurality of secondary power ports includes a first secondary power port ("12.5KW Power Coupler" figures 4-7 ref# 160B) and a second secondary power port ("50KW Power Coupler" figures 4-7 ref# 160D) that receive power from the utility port via the first charging module (col. 3 lines 40-67, and col. 4 lines 1-36).

Henze further discloses the first charging module includes a first power converter connecting to the first secondary power port ("Power Converter" figures 4-7 ref# 158B), a second power converter connecting to the second secondary power port ("Power Converter" figures 4-7 ref# 158D), a crossover switch switchably connecting the first power converter to the second secondary power port ("Switch" figures 4-7 ref# 162B), and a module controller configured to control the operation of the crossover switch and establish the power distribution

Art Unit: 2836

between the first and second secondary power ports ("Controller" figures 4-7 ref# 159 and col. 7 lines 7-62).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 45-47, 52, 54, 55, 58, and 62-63 rejected under 35 U.S.C. 103(a) as being unpatentable over Henze (US 5,926,004).

Henze discloses a method and apparatus for charging one or more electric vehicles having a primary power port and a plurality of secondary power ports, as above with respect to claim 1.

Henze does not disclose a plurality of power input ports. However, Henze teaches that the power source may be of a number of diverse sources, such as a single-phase AC utility, a poly-phase AC utility, or a DC supply (col. 3 lines 64-67 and col. 4 lines 1-3). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a plurality of input ports in the invention of Henze to allow the charging system to be used in a variety of environments.

Claims 14, 16-17, 21, 48, 50-51, and 53 are rejected under 35 U.S.C. 103(a) as being obvious over Henze (US 5,926,004) and Gilbert (US 6,357,011).

Henze discloses the above stated method and apparatus for charging one or more electric vehicles having a system controller configured for recharging batteries and a plurality of

Art Unit: 2836

power couplers, but does not disclose the system controller is configured to operate at least one secondary power port of the plurality of secondary power ports bidirectionally.

Gilbert discloses a bus-powered computer peripheral with supplement battery power to overcome the bus-power limit having a controller (figures 1-2 ref# 44) configured to operate a rechargeable battery (figures 1-2 ref# 48) bidirectionally (col. 3 lines 10-67, and col. 4 lines 1-12). Additionally, Gilbert discloses a voltage regulator configured to regulate power drawn by the batteries (figures 1-2 ref# 46), and a controller configured to transmit command signals appropriate to direct the voltage regulator of the batteries to regulate the power drawn by the batteries (figures 1-2 ref# 44, col. 1 lines 54-67, col. 2 lines 1-10, col. 3 lines 10- 41,65-67, and col. 4 lines 1-12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Henze to include configuring the system controller to operate the rechargeable batteries connected to the power couplers in a bidirectional manner such as that taught by Gilbert in order to overcome the power limits associated with the charging station (Gilbert col. 1 lines 54-67 and col. 2 lines 1-10).

Claims 15 and 49 are rejected under 35 U.S.C. 103(a) as being obvious over Henze (US 5,926,004) and Gilbreth (US 2003/0007369).

Henze discloses the above stated method and apparatus for charging one or more electric vehicles having a system controller configured for recharging batteries and a plurality of power couplers, but does not disclose the system controller is configured to operate the primary power port bi-directionally.

Gilbreth discloses a power controller ("CPU" figure 2 ref# 32) that operates the power converter (figure 1 ref# 16) connected to the utility bi-directionally (page 2 paragraphs 29-33).

Art Unit: 2836

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Henze to include configuring the system controller to operate the primary power port in a bi-directional manner such as that taught by Gilbreth in order to transmit excess power from discharging batteries on to the grid and sell the power back to the utility company.

15. Claims 26 and 56 are rejected under 35 U.S.C. 103(a) as being obvious over Henze (US 5,926,004).

Henze discloses the above method and apparatus for charging one or more electric vehicles having a first power converter ("Power Converter" figures 4-7 ref# 158B) of the first charging module connected to the first secondary power port ("Power Coupler" figures 4-7 ref-# 160B) through a first connecting switch ("Switch" figures 4-7 ref# 162B) of the first charging module, a second power converter ("Power Converter" figures 4-7 ref# 158D) of the first charging module connected to the second secondary power port ("Power Coupler" figures 4-7 ref# 160D), and a module controller of the first charging module is configured to control the operation of the first connecting switch and establish distribution between the first and second secondary power port ("Controller" figures 4-7 ref# 159 and col. 7 lines 7-62), but does not disclose a second power converter of the first charging module connected to the second secondary power port through a second connecting switch of the first charging modules.

Henze discloses the claimed invention except for the second connecting switch. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a second connecting switch, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8, *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

The motivation to add a second connecting switch is to allow all four power ports of the charging station to use 50KW power couplers rather than just one power port. This configuration allows the operator of the charging station to connect the batteries to the power couplers based on the first available power coupler rather than having to wait for the battery on the correspondingly sized power coupler to finish charging before connecting a subsequent battery, thus using 50KW power couplers increases the speed at which the batteries can be charged.

Response to Arguments

Applicant's arguments filed 26 June 2006 have been fully considered but they are not persuasive.

With respect to applicant's argument "The cited art fails to disclose a power controller configured to regulate the power received from a primary power port." Henze teaches a controller circuit ("Controller" figures 4-7 ref# 159) that regulates power distributed by at least one secondary power port. Such power will be received from the primary power port.

With respect to applicant's argument "The Henze device lacks a power converter capacity to exceed the primary port power rating, and thus such a power controller configuration would lack a purpose. For example, in Fig. 4 of Henze, the combined capacity of the power converters is 50.0 KW, which is not disclose to be in excess of the primary port power rating." The values at the secondary power ports are shown as three 12.5KW couplers and one 50KW coupler. These combined provide a higher rating than the power source which itself is limited to 50KW.

Allowable Subject Matter

Art Unit: 2836

Claim 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 57 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Claims 59 and 60 allowed.

The following is an examiner's statement of reasons for allowance: claims 59 and 60 contain subject matter previously indicated as allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2836

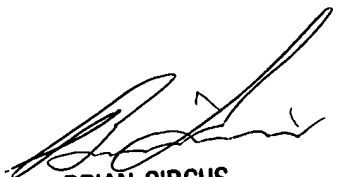
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew M. Deschere whose telephone number is (571) 272-8391. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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